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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,637	04/02/2004	Terry M. Provo	7162-0115	1064

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EXAMINER
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NGUYEN, THINH T

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 11/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/816,637

Applicant(s)

PROVO ET AL.

Examiner

Thinh T Nguyen

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED OFFICE ACTION**

1. Claims 1-8 are pending in the application.

**Specification**

2. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant cooperation is requested in correcting any errors of which the applicant may become aware in the specification.

**Claim Rejections - 35 USC § 102**

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b/e) that form the basis for the rejections under this section made in this office action.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

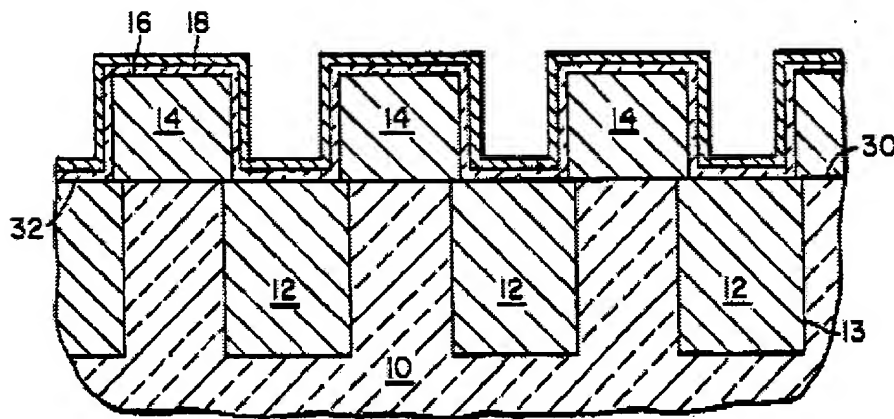
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 1- 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Geffken et al. (US patent 5,339,212) or Smith et al. (U.S. Patent 5,055,966).

**REGARDING CLAIM 1**

Art Unit: 2818

Geffken et al. ( the abstract, fig 1,layer 12,column 2 lines 25-26) disclose a method for manufacturing embedded capacitors comprising: forming at least one bore ( fig 1 via 12) in a dielectric substrate, filling the bore with a conductive material to form a first electrode; and disposing a conductor ( fig 1 layer 18) on the dielectric substrate, the conductor not being electrically continuous with the first electrode; wherein at least one of a depth and a cross sectional area of the bore is selected to provide a desired amount of capacitive coupling between the electrode and the conductor.

**FIG. 1**

Similarly Smith et al. (the abstract, fig 2,metal via 302B,conductor 105B) disclose the same invention.

Art Unit: 2818

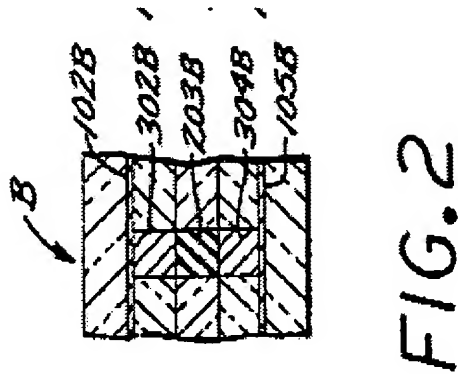


FIG. 2

## REGARDING CLAIM 2

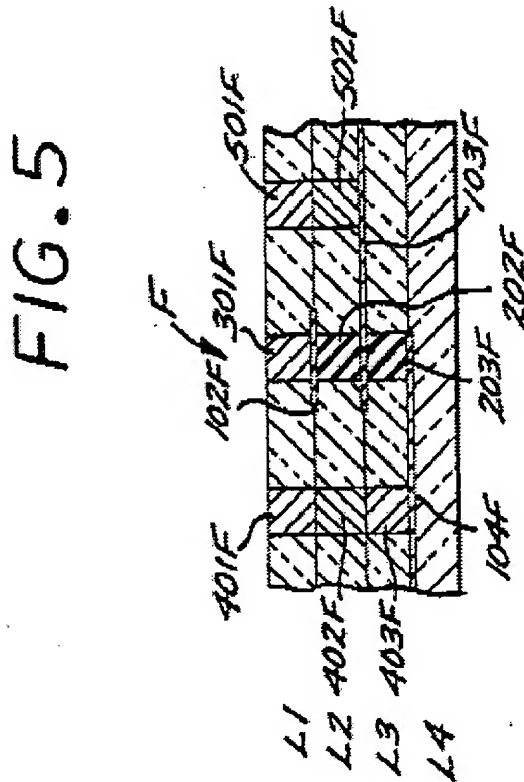
Geffken et al. (fig 1 , the abstract, ) disclose a method for making capacitor comprising disposing a second conductor ( fig 1 layer 14) on the dielectric substrate in electrical contact with said first electrode.

Similarly Smith et al. (the abstract, fig 2, metal via 302B, conductor 102B) disclose the same invention.

## REGARDING CLAIM 3

Geffken et al. (fig 1 , the abstract ) disclose a method for making capacitor comprising forming at least a second bore in the dielectric substrate; filling the second bore with a conductive material to form a second electrode; electrically connecting the first electrode and the second electrode.

Similarly Smith et al. (the abstract, fig 6, metal via 203F, metal via 403F, conductor 104B) disclose the same invention.



REGARDING CLAIM 4

Smith et al. (fig 6, the abstract) disclose a method for making capacitor forming at least a second bore (fig 6 , reference 403) in the dielectric substrate, filling the second bore with a conductive material to form a second electrode; and electrically connecting the second electrode to the conductor ( fig 6 reference 104F).

Similarly Geffken et al. (the abstract, fig 1,conductor 14) disclose the same invention.

5. Claim 7-8 are rejected under 35 U.S.C. 102 (b) as being anticipated by McClanahan et al. (US patent 5,396,397)

Art Unit: 2818

## REGARDING CLAIM 7

McClanahan et al. (fig 3, the abstract) disclose a method for making capacitor wherein the first bore being formed in a first layer L1 of the dielectric substrate, the method further comprising: forming a second bore in a second dielectric layer L2: filling the second bore with a conductive material, and joining the first and second dielectric layers such that the conductive material in the first bore is electrically continuous with the conductive material in the second bore, the conductive material in the first and second bores forming an extended electrode ( fig 3 reference 23).

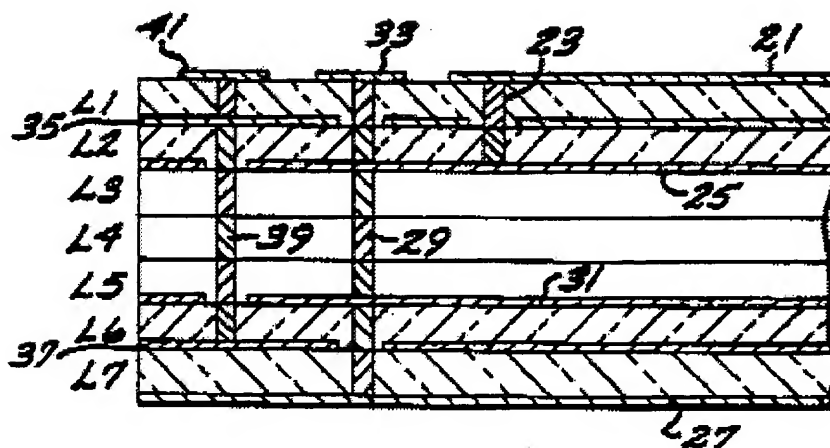


FIG. 3

## REGARDING CLAIM 8

McClanahan et al. (fig 4, the abstract, column 2 lines 35-40) disclose a method for making capacitor comprising: forming at least one bore in a first dielectric layer; filling the bore with a conductive material, disposing a first conductor on the first dielectric layer ( layer L8 and

Art Unit: 2818

layer L9), the first conductor being in electrical contact with the first electrode. disposing a second conductor on a second dielectric substrate, and joining together the first and second dielectric layers such that the first and second conductors are not electrically continuous; wherein dimensions of at least one of the first conductor and the second conductor are selected to provide a desired amount of capacitive coupling between the first conductor and the second conductor.



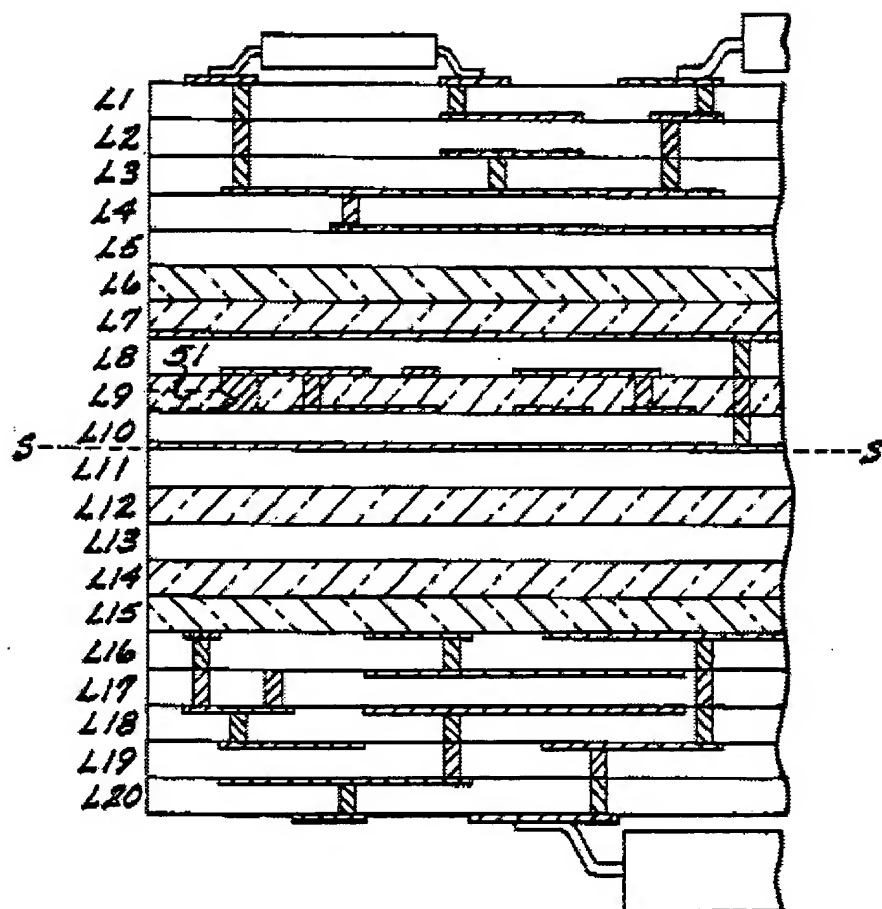


FIG.4

**Claim Rejections - 35 USC § 103**

6. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (U.S. patent 5,055,966) in view of further remark.

**REGARDING CLAIM 5,6**

Smith et al. ( fig 2, the abstract) disclose all the inventions except are silent about using laser drill or mechanical punch to form via hole. These features, however, are old and well known in the art as shown in Palmer et al. (US patent 6,061,228), column 4 line 56-60, provided in Applicants 'IDS. A person skilled in the art at the time the invention was would be able to implement mechanical or laser drill on the invention by Smith et al. without any special teachings.

8. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

Art Unit: 2818

9. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

### CONCLUSION

10. The prior arts made of record and not relied upon are considered pertinent to applicant disclosure: Shepherd (US patent 6,205,032) discloses a low temperature co-fired ceramic with improved registration.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790.

The examiner can normally be reached on Monday-Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Thinh T. Nguyen *TTN*

Art Unit 2818

  
David Nelms  
Supervisory Patent Examiner  
Technology Center 2800